Low Level of Autophagy-Related Gene 10(ATG10) Expression in the 6-Hydroxydopamine Rat Model of Parkinson'sDisease

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ABSTRACT

Background: Autophagy is a mechanism disassembling the damaged organelles from the cell. This study attempted to examine the expression of several autophagy-relatedgenes in Parkinson's disease (PD) rat model.

Methods: The male Wistar rats were divided into three groups as control, sham,and lesion.In the latter group, the PD rat model was induced by the injection of 6-hydroxydopamine in the striatum.The behavioral test was conducted one (baseline) and four weeks after the surgerythrough apomorphine hydrochloride.Then the RT-PCR technique was employed to evaluate the expressions of p62/SQSTM, autophagy-related genes(ATG)5, ATG12, ATG16L1, ATG10, as well as GAPDHand LC3.

Results: By injecting apomorphine, the striatal lesion group showed a significant contralateral rotationatfourth week as compared tothebaseline.The examination of p62, ATG5, ATG12, ATG16L1,and LC3expressions usingRT-PCRrevealed that p62, ATG5, ATG12, LC3,andATG16L1were expressed in the substantia nigra of PD rat model, while ATG10wasnot expressed.

Conclusion:ATG10 expression is necessary for the initiation of autophagy. Thus, these results show that autophagy deregulation occurs in the initiation stages of the process in the rat model of PD.DOI: 10.22034/ibj.22.1.15

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